THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

TOWN OF FORT FRANCES

DISTRICT OF RAINY RIVER

1964

R E P O R T

on a

Water Pollution Survey

of the

Town of Fort Frances

District of Rainy River

September 10, 1964.

Division of Sanitary Engineering

R E P O R T

ONTARIO WATER RESOURCES COMMISSION

A water pollution survey of drains and sewers, which discharge into the Rainy River watercourse from the Town of Fort Frances, was undertaken on September 10, 1964.

ACKNOWLEDGEMENTS

Mr. J. S. Yee, Town Engineer, and Mr. N. Kotyk, Public Health Inspector, Northwestern Health Unit, provided information pertinent to the survey. Mr. C. D. Saunders, Sewer and Water Superintendent, assisted in the sampling programme.

GENERAL

The assessed population of Fort Frances is listed as 9295 (1964 Municipal Directory).

General drainage from the area is into the Rainy River which in turn flows into Lake of the Woods.

A sewerage works programme is currently being instituted in the town. A water pollution control plant was put into operation earlier this year, and additional sanitary sewers were being installed at the time of this survey.

Private septic tank systems are generally utilized for the treatment of domestic wastes in areas where sanitary sewers have not yet been installed. The installation and operation of these systems is supervised by the Northwestern Health Unit.

The purpose of the pollution survey is to assess the degree of pollution that is being discharged from the municipality into the Rainy River. Such pollution, if present, would be carried in, and discharged from municipal surface-water drains, natural surface-water drains, municipal storm sewers, and municipal sanitary sewers, which outfall into the watercourse. Consequently an effort was made to locate and examine the discharge from such drains. Samples were collected where possible and submitted for water quality analyses.

An OWRC Industrial Waste Report dated September 1964, reviews the requirements for the treatment and disposal of waste from the Ontario-Minnesota Pulp and Paper Company Limited. Consequently pollution caused by the discharge of inadequately treated waste from this operation was not included in the survey.

WATER QUALITY ANALYSES

The sanitary chemical analyses and bacteriological examinations of samples collected are listed in Table 1.

The locations of sampling points are designated on the accompanying map.

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission water quality objectives for discharges from drains into watercourses are listed:

Five-Day Biochemical Oxygen Demand (5-Day BOD)
- not greater than 15 parts per million (ppm)

Suspended Solids
- not greater than 15 parts per million (ppm)

Coliform Count - Most Probable Number (M.P.N.)
- not greater than 2,400 per 100 cubic centimeters (c.c.)

Anionic Detergent as Alkyl Benzene Sulfonate (ABS)

The presence of anionic detergent in water samples indicates pollution from domestic sources.

SIGNIFICANCE OF LABORATORY ANALYSES

It is noted from Table 1 that 17 of the 39 outfalls investigated contained no flow.

It is also noted that of the 22 drains investigated, the water quality analyses indicated that;

(a) 14 drains (64%) - less than 4 ppm BOD
(b) 10 drains (45%) - less than 15 ppm Suspended Solids
(c) 7 drains (33%) - 2,400 or less total coliform count
(d) 11 drains (50%) - no indication of Anionic Detergent

These results indicate that the level of pollution in approximately half of the drains investigated is relatively low, and that the discharge from these drains is conforming to OWRC water quality objectives.

The analyses of samples collected from the other drains however, do indicate that pollution is being discharged from the municipality into the watercourse.

Sample No. RL- 1.D - Residential School Road Drain

The analyses of samples collected from this drain indicate some pollution. The presence of anionic detergent and the high

coliform count indicate domestic sewage to be the major source. (Rate of flow estimated at 2 gpm)

Sample No. RL-3.D - Pithers Park Drain (East Side)

Domestic sewage is also indicated to be the source of pollution in this drain. (Rate of flow estimated at 1 gpm)

Sample No. RR-5.I - Fort Frances Brewery Outfall

The extremely high BOD indicates a processing waste to be the source of pollution in this drain. (Estimated flow 2 gpm)

Sample No. RR-9.W - Outfall between Third and Fourth Sts.

The extremely high anionic detergent content and the excessive total coliform count again indicate that domestic sewage is the probable source of the pollution. (Estimated flow 3-4 gpm).

Sample No. RR-23.W - Victoria Avenue Outfall

The increased BOD of the contents of this drain would indicate that industrial or commerical waste is the probable source of pollution.

Sample No. RR-26.W - Outfall at Mowat Avenue and Nelson St.

The presence of anionic detergent and the increased coliform count indicate that domestic sewage is a probable source of pollution.

Sample No. RR-31.S - Faries Avenue Outfall

This is a sanitary sewer outfall which discharges sewage and waste, without treatment into Rainy River.

The sewered areas serviced by the drain consist of: (1) a section north of Colonization Road, bounded on the east by Homes Avenue, on the north by Third Street and on the west by Flinders Avenue.

(2) a section south of Colonization Road, bounded on the east by Elm Avenue, on the south by River Drive Road and on the west by Flinders Creek.

The sanitary chemical and bacteriological analyses of samples collected from this drain indicate that the waste discharge is composed of sanitary sewage and industrial waste. The industrial waste is probably being discharged from the Clover Valley Dairy operation.

The extremely high laboratory results of samples collected indicate that the discharge from this drain could be a major source of pollution to the watercourse.

Sample No. RRF-32 - Flinders Creek

The presence of anionic detergent and the high total coliform count indicate that untreated waste is being discharged to the creek. Waste from the Fort Frances Dairy is probably included.

Sample No. RRB-35 - Bidderson's Creek

The laboratory analyses indicate that pollution is present in the watercourse.

CONCLUSIONS

The following conclusions are based on visual inspections, direct investigations, and water quality analyses, as conducted at the time of the survey.

1. The pollution abatement programme of the Town of Fort Frances is progressing favourably.

2. A high percentage of the town is now serviced by sanitary sewers. Additional installations are being made as time and finances permit.

3. A water pollution control plant, which was put into operation this year provides treatment for sewage collected.

4. A sanitary sewered area, in the west section of town, from which the collected sewage is discharged, without treatment into Rainy River, through the Faries Avenue sewer outfall, is considered a major source of pollution to the watercourse.

5. Polluting materials are still being discharged into some surface-water drains and watercourses. Such materials could include domestic and commercial sewage, and dairy and brewery processing wastes.

SUMMARY

A water pollution survey was conducted in the Town of Fort Frances on September 10, 1964.

A total of 39 drains which discharge into the Rainy River watercourse were investigated. Included were natural surface drains municipal surface-water drains, and storm sewers, sanitary sewer overflows, by-passes, and direct outfalls.

Of the 39 drains investigated 17 contained no flow or discharge at the time of inspection.

The laboratory analyses of samples collected from 22 drains indicate that the level of pollution in approximately 13 is relatively low, and is conforming to OWRC water quality objectives.

Varying levels of pollution are present in the other drains. Laboratory analyses indicate that domestic sewage and food plant processing wastes are probably responsible for the pollution.

The discharge of untreated sanitary sewage collected from a sewered area and discharged through the Faries Avenue sewer outfall (Sample No. RR-31.S) is considered as a major source of pollution to the watercourse.

Processing waste from the brewery operation (Sample No. RR-5.I) and from the two dairy operations (Samples No. RR-31.S and RRF-32) is also considered as a major source of pollution.

RECOMMENDATIONS

1. The discharge of sanitary sewage from the Faries Avenue sewer outfall into Rainy River, should be discontinued.

Measures should be taken to have this sewage intercepted and conveyed to the water pollution control plant for treatment.

2. Adequate treatment should be provided for processing wastes from industrial plants, such as the brewery and two dairy operations.

3. The municipality should take measures to ensure that all private drains which discharge inadequately treated wastes to any surface-water drain or watercourse are immediately located and severed.

This action will require the owner of each property not currently being serviced by sanitary sewers, to provide a means of adequate treatment for his own wastes.

All of which is respectfully submitted,

District Engineer _____
C.E. McIntyre, P.Eng.,

Approved by _____
K.H. Sharpe, Director.

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Prepared by: Mr.J.K. Ferris,
Engineer's Assistant.

TABLE 1

TOWN OF FORT FRANCES - WATER POLLUTION SURVEY

Drain and Sewer Outfalls

Sampling Point No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	Anionic Detergent as ABS (ppm)	Coliform Count per 100 c.c. M.P.N.
RL-1.D	Residential School Road Drain.	5.0	192	4	188	0.2	240,000
RL-2.D	Lake Road Drain.	2.2	498	2	496	0.7	240,000
RL-3.D	Pithers Park Drain (east side).	11.0	320	84	236	0.3	46,000
RR-4.D	Pithers Park Drain (south side).	2.1	496	18	478	0.0	46,000
RR-5.I	Fort Frances Brewery (private drain).	420.0	754	240	514	0.0	210
RR-6.W	End of Mill Road.	2.0	462	12	450	0.1	240,000
RR-7.W	End of Bayview and Sixth Sts.	No Flow					
RR-8.W	End of Fifth St.	1.7	592	76	516	0.0	210
RR-9.W	Between Third and Fourth Sts.	8.0	640	42	598	6.4	24,000

TABLE 1 (CONT'D)

Sampling Point No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	Anionic Detergent as ABS (ppm)	Coliform Count per 100 c.c. M.P.N.
RR-10.W	End of Third St.	2.6	506	36	470	0.0	2,400
RR-11.W	End of Second St.	0.1	556	6	550	0.0	430
RR-12.W	End of First St.	No Flow					
RR-13.W	End of Scott St. (north side).	No Flow					
RR-14.W	End of Scott St. (south side).	No Flow					
RR-15.W	End of Williams Ave.	No Flow					
RR-16.W	End of Minnie Ave.	No Flow					
RR-17.W	End of Shevlin Ave.	No Flow					
RR-18.W	End of Reid Ave.	1.5	576	2	574	0.1	2,400
RR-19.W	End of Butler Ave.	No Flow					
RR-20.W	End of Mosher Ave.	No Flow					
RR-21.W	End of Crowe Ave.	4.0	550	36	520	0.2	24,000

TABLE 1 (CONT'D)

Sampling Point No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	Anionic Detergent as ABS (ppm)	Coliform Count per 100 c.c. M.P.N.
RR-22.W	End of Armit Ave.	No Flow					
RR-23.W	End of Victoria Ave.	24.0	318	76	242	0.0	2,400
RR-24.W	End of Portage Ave. (east side).	No Flow					
RR-25.W	End of Portage Ave. (west side).	No Flow					
RR-26.W	Mowat Ave. and Nelson St. By-pass to canal.	11.0	236	44	192	0.1	9,300
RR-27.W	Central Ave. and Third St.	1.2	596	7	589	0.0	2,400
RR-39.D	Cemetary By-pass.	No Flow					
RR-28.W	Webster Creek.	1.9	396	18	378	0.0	24,000
RR-29.W	End of Elm Ave.	No Flow					
RR-30.W	End of Holmes Ave.	No Flow					
RR-31.S	End of Faries Ave. (sanitary sewer outfall).	230.0	3,068	2,656	412	6.2	240,000+

TABLE 1 (CONT'D)

Sampling Point No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliform Count per 100 c.c. M.P.N.
RRF-32	Flinders Creek	4.4	456	148	308	0.4	240,000+
RR-33.W	End of McIrvine Rd.	No Flow					
RR-34.W	End of Biddeson Ave.	No Flow					
RRB-35	Biddeson's Creek	8.0	384	42	342	0.0	240,000
RR-36.W	Colinization Rd. at boundary with Twp. of Crozier.	3.2	348	26	322	0.2	15,000
RLF-37	Frog Creek at McIrvine Rd. N.	2.5	236	4	232	0.0	9,300
RLF-38	Frog Creek.	1.3	158	10	148	0.0	2,400